IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Honeywell Case No. A11-26455-US
(Case No. 00-697-B)

In re Application of:)
)
Knowles et al.)
) **Group Art Unit: 2856**
Serial No.: 10/816,719)
) **Examiner: Jacques M. Saint-Surin**
Filed: April 1, 2004)
)
For: Coupled Micromachined Structure)

PROPOSED AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A micromachined device comprising:

a first proof mass and a second proof mass, each having a plurality of respective corners, the first and second proof masses each having ~~at least three~~ support arms flexibly coupling the masses at their corners to a substrate; and

at least one spring element having a first end and a second end, the first end of the at least one spring element connected to the first proof mass and the second end of the at least one spring element connected to the second proof mass, the at least one spring element compressing when the first proof mass and the second proof mass move toward each other, and uncompressing when the first proof mass and the second proof mass move away from each other.

2. (Original) The micromachined device of claim 1, wherein the first end of the at least one spring element is connected to a side of the first proof mass that is closest to the second proof mass and the second end of the at least one spring element is connected to a side of the second proof mass that is closest to the first proof mass.

3. (Original) The micromachined device of claim 2, wherein the first end of the at least one spring element is connected to the first proof at substantially the midpoint of the side of the first proof mass and the second end of the at least one spring element is connected to the second proof mass at a point at substantially the midpoint of the side of the second proof mass.

4. (Cancelled)

5. (Currently Amended) A micromachined device comprising:

a first proof mass and a second proof mass, each having a plurality of respective corners, the first and second proof masses each having ~~at least three~~ support arms flexibly coupling the masses at their corners to a substrate; and

a plurality of spring elements, each spring element having a first end and a second end, the first end of each spring element connected to the first proof mass and the second end of each spring element connected to the second proof mass, the plurality of spring elements compressing when the first proof mass and the second proof mass move toward each other, and uncompressing when the first proof mass and the second proof mass move away from each other.

6. (Original) The micromachined device of claim 5, wherein the first end of each spring element is connected to a side of the first proof mass that is closest to the second proof mass and the second end of the at least one spring element is connected to a side of the second proof mass that is closest to the first proof mass.

7. (Cancelled)

8. (Original) A micromachined device comprising:

a first proof mass;

a second proof mass;

a plurality of support arms attached to the first proof mass and the second proof mass;

each of the support arms flexibly coupling the first proof mass and the second proof mass to a substrate;

at least one of the support arms including a first end coupled to the substrate and a second end coupled to the substrate;

wherein at least one of the first and the second proof masses are connected to the at least one support arm at a point between the first end and the second end of the support arm; and

at least one spring element having a first end and a second end, the first end of the at least one spring element connected to the first proof mass and the second end of the at least one spring element connected to the second proof mass.

9. (Original) The micromachined device of claim 8, wherein the first end of the at least one spring element is connected to a side of the first proof mass that is closest to the second proof mass and the second end of the at least one spring element is connected to a side of the second proof mass that is closest to the first proof mass.

Claims 10-11 (Cancelled)

12. (Original) A micromachined device comprising:

a first proof mass;

a second proof mass;

a plurality of support arms attached to the first proof mass and the second proof mass;

each of the support arms flexibly coupling the first proof mass and the second proof mass to a substrate;

at least one of the support arms including a first end coupled to the substrate and a second end coupled to the substrate;

wherein at least one of the first and the second proof masses are connected to the at least one support arm at a point between the first end and the second end of the support arm; and

a plurality of spring elements, each spring element having a first end and a second end, the first end of each spring element connected to the first proof mass and the second end of each spring element connected to the second proof mass.

13. (Original) The micromachined device of claim 12, wherein the first end of each spring element is connected to a side of the first proof mass that is closest to the second proof mass and the second end of the at least one spring element is connected to a side of the second proof mass that is closest to the first proof mass.

14. (Cancelled)

15. (Previously Amended) A micromachined device comprising:

a first proof mass;

a second proof mass;

a plurality of support arms attached to the first proof mass and second proof mass, each of the support arms flexibly coupling the proof masses to a substrate;

wherein at least one of the support arms includes a first end coupled to the substrate and a second end coupled to the substrate, the at least one support arm comprising:

a first spring element attached to the substrate;

a second spring element attached to the substrate; and

a rigid lateral element having a first end and a second end, the first end of the rigid lateral element connected to the first spring element and the second end of the rigid lateral element connected to the second spring element;

wherein each proof mass is connected to the rigid lateral element at a point between the first end and the second end of the support arm and wherein the support arm is substantially diametrical about the point, in a plane that is parallel to the substrate; and

at least one coupling spring having a first end and a second end, the first end of the at least one coupling spring connected to the first proof mass and the second end of the at least one coupling spring connected to the second proof mass.

16. (Previously Presented) The micromachined device of claim 15, wherein the first end of the at least one coupling spring is connected to a side of the first proof mass that is closest to the second proof mass and the second end of the at least one coupling spring is connected to a side of the second proof mass that is closest to the first proof mass.

17. (Previously Presented) The micromachined device of claim 15, wherein the first end of the at least one coupling spring is connected to a side of the first proof mass that is closest to the second proof mass at substantially the midpoint of the side of the first proof mass and the second end of the at least one coupling spring is connected to a side of the second proof mass that is closest to the first proof mass at substantially the midpoint of the side of the second proof mass.

18. (Previously Presented) The micromachined device of claim 17, wherein the first end of the at least one coupling spring and the second end of the at least one

coupling spring lie on a straight line that comprises an axis of oscillation of the first proof mass and the second proof mass.

19. (Previously Presented) The micromachined device of claim 15, wherein the point is substantially equidistant from the ends of the rigid lateral element.

20. (Previously Presented) The micromachined device of claim 15, wherein the connection of the first spring element to the rigid lateral element creates a first end flexure point, the connection of the second spring element to the rigid lateral element creates a second end flexure point, and the connection of a proof mass to the rigid lateral element creates a middle flexure point.

21. (Previously Presented) The micromachined device of claim 15, wherein the first end flexure point, the second end flexure point, and the middle flexure point lie on a substantially straight line.

22. (Previously Presented) The micromachined device of claim 21, wherein the substantially straight line comprises an axis of alignment.

23. (Previously Presented) The micromachined device of claim 22, wherein the axis of alignment is parallel to an axis of oscillation of the proof mass.

24. (Previously Amended) The micromachined device of claim 23, wherein when at least one of the proof masses moves along the axis of oscillation, the middle flexure point where it is coupled to a rigid lateral element moves along the axis of alignment.

25. (Previously Amended) The micromachined device of claim 24, further including a second support arm having a first end coupled to the substrate and a second end coupled to the substrate, wherein at least one of the proof masses is connected to the second support arm at a point between the first end and the second end of the rigid lateral element.

26. (Previously Amended) The micromachined device of claim 25, wherein the at least one support arm and the second support arm are positioned on the same side of a at least one of the proof masses.

27. (Previously Amended) The micromachined device of claim 25, wherein the at least one support arm and the second support arm are positioned on opposite sides of a at least one of the proof masses.